REMARKS/ARGUMENTS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Upon entry of the above amendments, claims 1-18, as amended, will be pending. Claim 1 is independent. Claims 3 and 4 are converted to independent claims but are not otherwise substantively modified (a typographical error in the spelling of "therebetween" is corrected). All other claims are dependent.

In paragraph 8 of the Office Action, the Examiner objected to claims 3-6 as depending upon a rejected based claim but stated that these claims would be allowable if rewritten in independent form including all limitations of the base claims and any intervening claim.

Therefore, in view of the revision of claims 3 and 4 as independent claims (claims 5 and 6 depend, directly or indirectly, from claim 4), claims 3-6 are believed to be in condition for allowance.

However, for at least the following reasons it is respectfully submitted that claims 1-2 and 6-18 are also in condition for allowance.

Turning initially to the objection to claims 7 and 8, under 37 CFR 1.75(c), as improper dependent claims, Applicants respectfully disagree and, therefore, request reconsideration.

Regarding claim 7, which recites that the water-dispersible polymer is an olefinic polymer. The Examiner suggests that this claim encompasses many polymers outside the scope of claim 1. Applicants respectfully disagree.

Claim 1 recites a "water-dissipatable polymer with pendant hydroxy functional groups" and further recites that the polymer is "prepared by copolymerizing" certain monomers.

As described in the specification, the water-dissipatable polymer is not limited to the preferred embodiment of olefinic polymers but may include other polymers as well, of which polyurethanes and polyesters are specifically mentioned (see, page 7, lines 25-26; see also the current clarifying amendment of these lines of the specification). The specification on page 7, lines 26-28, further explains that "[a]n olefinic polymer is a polymer obtainable from the polymerisation of one or more olefinically unsaturated monomers."

Accordingly, the scope of claim 7 does further limit the scope of claim 1.

With respect to claim 8, for further clarity, this claim is amended to conform the amounts of the respective monomers to the amounts as already set forth in claim 1. Accordingly, it is not intended to change the meaning or scope of claim 8 but to make even more explicitly clear that the scope of claim 8 is not broader than the scope of claim 1.

For at least the above reasons, withdrawal of the objection applied to claims 7 and 8 is respectfully requested.

Applicants appreciate that the prior art rejections, except that in paragraphs 12 and 13 of the previous Office Action, have been withdrawn. It is believed that the remaining rejections, as set forth below, should also be withdrawn.

Before considering the prior art rejections, the following additional claims amendments are noted. In claims 1 and 2, for further clarification, it is now made even more explicit that the colorant is attached to the water-dissipatable polymer by means of the pendant hydroxy functional groups, through a covalent -O- linkage (see, e.g., the original disclosure and examples, as well as the explicit language in claims 3 and 4).

Claims 5 and 6 are amended to conform the preamble to that of claim 1.

Claim 8 is amended as discussed above.

Claim 14 is amended in form by using the more conventional terminology "wherein" in place of "characterized in that."

Claims 1-2, 7-9, 11 and 13-18 are rejected under 35 USC 103(a) as unpatentably obvious over Ikeda *et al* (US 5,952,429) (US '429) in view of Tsutsumi *et al* (US 6,031,019) (US '019). Reconsideration and withdrawal of this rejection is respectfully requested for at least the following reasons.

In rebuttal of the reasons given by Applicants for withdrawal of these rejections in the previous Remarks, the Examiner refers to col. 16, lines 34-38 and col. 17, lines 40-48 of US '429, as disclosing reacting hydroxy or carboxy group on the surface of carbon black with reactive group of polymer in order to form carbon black attached to polymer through ester or ether group. From this, the Examiner suggests that the reference does "disclose polymer having colorant attached through covalent -O- link ... ." It is further suggested that the polymers disclosed by the patentees include those obtained from monomers having pendant hydroxy functional groups and monomers providing water-dispersing groups, specifically

hydroxy group containing block or graft copolymer wherein the copolymer is obtained from monomers with hydroxy functional group, such as hydroxyalky (meth)acrylate and hydroxyalkyl (meth)acrylamide and monomers providing water-dispersing groups, such as (meth)acrylic acid. The disclosures at col. 24, lines 29-37, col. 29, lines 51-63, col. 30, line 10, col. 39, lines 22-35 and 36-41, col. 39, line 62 - col. 40, line 10, and col. 40, lines 36-51, are specifically identified.

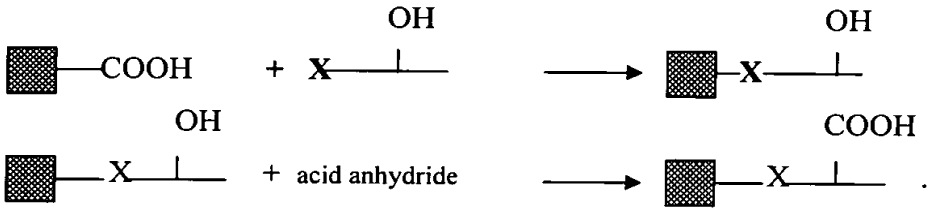
Applicants submit that upon more careful consideration of the disclosures of US '429 it will be readily apparent that this reference does not meet or suggest the features as claimed, including not only the viscosity of the ink and the amount of the monomers, but also the "water-dissipatable polymer having colorant attached thereto by means of said pendant hydroxy functional groups through a covalent -O- link" as suggested in the Office Action in paragraph 7.

Rather than having colorant attached to a water-dissipatable polymer by means of pendant hydroxy functional groups the polymers of US '429 have both reactive functional group **X** and hydroxy functional groups. This may be readily seen, for example, from Figures 4A to 4E of the US '429 patent drawings. As will be appreciated from the drawings, as well as the description in the specification, it is the functional group X that reacts with the functional groups on the surface of carbon black. The unreacted hydroxyl groups are subsequently treated with an acid anhydride to form carboxyl group(s).

According to the disclosure at col. 13, lines 25 to 42, carbon black with a graft chain containing carboxyl groups in an alkali-soluble photo-curable resinous composition improves the alkali developing property. However, reacting carbon black with polymers having a reactive group and carboxyl groups results in gelling as the carboxyl groups also react.

Therefore, the patentees react carbon black with a hydroxy functional polymer under conditions where the hydroxyl groups do not take part in the reaction but may be subsequently converted into the desired carboxyl groups. See also, col. 18, lines 4-19, which describes the techniques for introducing the reactive groups into the polymer. However, when the polymer contains, in addition to the reactive groups, hydroxyl groups, more particular conditions as described further on in the specification may be required.

The reactions of US '429 may be represented by the following diagrams:



The reaction described in US '429 does not contemplate or result in water-dissipatable polymer attached to colorant via pendant hydroxyl groups on the polymer (such as represented by the following diagram):

As may be appreciated, therefore, the reliance on US '429 for disclosing "water-dissipatable polymer having colorant attached thereto by means of ... pendant hydroxy functional groups [on the water-dissipatable polymer] through a covalent -O- link" is misplaced and should be withdrawn.

The additional parts of the specification of the '429 patent also fail to raise a case of *prima facie* obviousness with respect to the rejected claims. The portions of the specification identified in the rejection are addressed below.

Col. 16, lines 34 - 38:

This is just a disclosure of the carbon black and the functional groups on its surface.

Col. 17, lines 40 - 52:

This disclosure lists the types of covalent bonds through which the polymer may be grafted to carbon black. A number of reactive groups through which the covalent bond may be formed are described. It should be further noted that according to the disclosure at lines 57 - 67, the identified reactive groups all react under mild conditions and with high yields. Therefore, the practitioner would understand and expect these reactions to take preference to any hydroxyl groups that may, at best, optionally, be present.

Col. 24, lines 29 - 37:

This disclosure is that monomers containing the reactive group are to be copolymerized with other monomers to form the segments (A) and (B).

Col. 29, lines 51 -63:

Various monomers, such as N-hydroxyethyl acrylamide, are identified. This compound, for example, has the formula: CH_2=CHC(O)-NHCH_2OH, and would not be expected to react via -OH groups.

In fact, Applicants understand that such monomers will isomerize to give $CH_2CHC(O)\text{-}N^+H{=}CH_2 + H_2O$. This will then react through the $=CH_2$ terminal end and not through the hydroxyl group, which is not present in the isomer.

Col. 30, line 10:

Acrylic acid and other monomers are mentioned as monomer(s) for acquiring segment (A) to obtain a skeleton. These are only required to be capable of copolymerizing with monomer (a) (see col. 29, lines 64 - 67).

Col. 34, lines 21 - 23:

This disclosure relates to the molecular weight range of 1,000 to 1,000,000.

Col. 39, lines 22 - 25 and 36 - 41:

These disclosure are in the section, "1.7 Hydroxyl group-containing block- or graft-copolymer." What is described is that hydroxyl group containing copolymers have a reactive group capable of reacting with the functional group on the surface of the carbon black **and** have hydroxyl groups. Nothing here is inconsistent with the above description of the reactions that take place in the environment of the US '429 patent. Again, please see Figures 4A to 4F where X is the reactive group and -OH represents the hydroxyl group. There is no linkage via the hydroxyl group on the polymer.

Col. 39, line 60 to Col. 40, line 10:

This disclosure relates to graft copolymers with segments (A) and (B) where segment (A) contains monomer (a) with a reactive group for reacting with carbon black and segment (B) which may have the hydroxyl group and a reactive group to react with segment (A). Again, this disclosure is consistent with the explanation provided above.

Col. 40, lines 36 - 51:

This disclosure describes monomers for incorporating hydroxyl groups into segment (A). However, these monomers correspond to monomer (c), which are part of the skeleton and not the monomer (a) having the reactive groups for reacting with carbon black.

Col. 54, lines 39 - 41; line 64 to Col 55, line 39; Col. 55, lines 48 - 57:

This disclosure is in the section "2.3 Liquid recording-medium" and relates to ink jet printing; liquid media; and levels of carbon black.

Since none of these disclosures provide evidence that the present claims would have been *prima facie* obvious, withdrawal of the reliance on US '429 is appropriate and favorable action in this regard is earnestly solicited.

US '019 does not supply the missing features from US '429.

Accordingly, even if there is basis for modifying the ink embodiment of US '429 to have a viscosity less than 20 mPa.s, the combined disclosures of US '249 and US '019 would not have provided evidence that the present invention would have been *prima facie* obvious.

Therefore, the rejection under Section 103(a) of claims 1, 2, 7-9, 11 and 13-18 over US '429 in view of US '019 is respectfully traversed and withdrawal of this ground of rejection is respectfully requested.

Withdrawal of the rejection of claims 10 and 12 under 35 USC 103(a) over US '429 and US '019, as applied above, further in view of US '987, is respectfully requested for at least the same reasons as set forth above.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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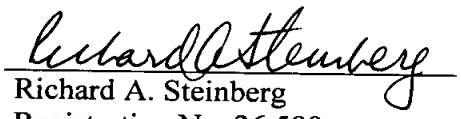
By: 

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